

L54 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2003:260123 CAPLUS  
 DN 138:264329  
 ED Entered STN: 04 Apr 2003  
 TI Composition and manufacture of tantalum oxide films for gate insulators or memory capacitors  
 IN Yonekura, Isamu; Okada, Yukiko; Kato, Hitoshi; Shio, Hiroshi  
 PA JSR Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM H01L021-316  
 ICS C08G079-00; C08K005-06; C08L085-00; H01L021-8242; H01L027-108  
 CC 76-10 (Electric Phenomena)  
 Section cross-reference(s): 57

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003100741	A2	20030404	JP 2001-297106	20010927 <--
PRAI	JP 2001-297106		20010927		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003100741	ICM	H01L021-316
	ICS	C08G079-00; C08K005-06; C08L085-00; H01L021-8242; H01L027-108

AB The title composition contains (1) a reaction product from Ta alkoxide and a reactant compds. chosen from aminoalc., a compound having  $\geq 2$  OH groups,  $\beta$ -diketone,  $\beta$ -ketoester,  $\beta$ -dicarboxylic ester, lactic acid, Et lactate, and/or 1,5-cyclooctadiene and (2) o-carboxylic esters. The title manufacture involves coating the composition on a substrate and heating or light irradiating on the coated composition to give a Ta oxide film.

ST tantalum alkoxide carboxylic ester coating compn heating light irradiation; gate insulator memory capacitor tantalum oxide manufacture

IT Alcohols, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (amino; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Memory devices  
 (capacitor dielectric film; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Hydroxyl group  
 (compds.; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Composition  
 (composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Ketones, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Carboxylic acids, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (esters, di-, esters; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Electric insulators  
(for gates and memory capacitors; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Coating materials  
(for tantalum oxide formation; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Esters, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(keto; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Capacitors  
(memory, dielec. film; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Carboxylic acids, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(o-, ester; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT Coating process  
(spin-on; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT 59763-75-6P, Tantalum oxide  
RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)  
(coating composition for; composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

IT 50-21-5, Lactic acid, reactions 97-64-3, Ethyl lactate 102-71-6,  
Triethanolamine, reactions 107-98-2, 1-Methoxy-2-propanol 111-46-6,  
Diethylene glycol, reactions 111-78-4, 1,5-Cyclooctadiene 123-31-9,  
Hydroquinone, reactions 6074-84-6, Tantalum pentaethoxide 7440-25-7D,  
Tantalum, ethoxide 16761-83-4, Tantalum pentaisopropoxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(composition and manufacture of tantalum oxide films for gate insulators or memory capacitors)

RN 59763-75-6P  
RN 50-21-5  
RN 97-64-3  
RN 102-71-6  
RN 107-98-2  
RN 111-46-6  
RN 111-78-4  
RN 123-31-9  
RN 6074-84-6  
RN 7440-25-7D  
RN 16761-83-4

L54 ANSWER 2 OF 3 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN  
AN 2004-249700 [24] WPIX  
DNN N2004-197958 DNC C2004-097851  
TI Composition for tantalum oxide film formation, contains orthocarboxylate ester and reaction product of tantalum alkoxide and amino alcohol with compounds such as beta diketone, beta-keto ester and lactic acid.  
DC A85 E31 L03 U11  
PA (JAPS) JSR CORP  
CYC 1  
PI JP 2003100741 A 20030404 (200424)\* 9 H01L021-316 <--  
ADT JP 2003100741 A JP 2001-297106 20010927  
PRAI JP 2001-297106 20010927  
IC ICM H01L021-316

ICS C08G079-00; C08K005-06; C08L085-00; H01L021-8242; H01L027-108  
 AB JP2003100741 A UPAB: 20040408  
 NOVELTY - The tantalum oxide film forming composition contains orthocarboxylate ester, and the reaction product of tantalum alkoxide (a1) and amino alcohol (a2) (except amino alcohol which has 2 or more hydroxyl groups), with beta -diketone, beta -keto ester, beta -dicarboxylic acid ester, lactic acid, ethyl lactate and/or 1,5-cyclooctadiene.  
 DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for formation method of tantalum oxide film.  
 USE - For forming tantalum oxide film (claimed) used as insulation film for semiconductor devices, such as insulation film for capacitors, gate insulation film used for dynamic random access memory (DRAM).  
 ADVANTAGE - A high quality tantalum oxide film is formed easily and simply. Electric current leak of the film is reduced.  
 DESCRIPTION OF DRAWING(S) - The figure shows electron spectroscopic chemical analysis (ESCA) spectrum of the tantalum oxide.  
 Dwg.1/2  
 FS CPI EPI  
 FA AB; GI; DCN  
 MC CPI: A12-E01; E05-N; E35-N; L03-G04A; L04-C12A  
 EPI: U11-C05B7

L54 ANSWER 3 OF 3 JAPIO (C) 2005 JPO on STN  
 AN 2003-100741 JAPIO  
 TI COMPOSITION FOR FORMING TANTALUM OXIDE FILM, AND MANUFACTURING METHOD FOR THE TANTALUM OXIDE FILM  
 IN YONEKURA ISAMU; OKADA SACHIKO; KATO HITOSHI; SHIHO KOUJI  
 PA JSR CORP  
 PI JP 2003100741 A 20030404 Heisei  
 AI JP 2001-297106 (JP2001297106 Heisei) 20010927  
 PRAI JP 2001-297106 20010927  
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2003  
 IC ICM H01L021-316  
 ICS C08G079-00; C08K005-06; C08L085-00; H01L021-8242; H01L027-108  
 AB PROBLEM TO BE SOLVED: To provide a composition for forming a high quality tantalum oxide film, having little leakage current using a simple coating method, and to provide a forming method for the tantalum oxide film.  
 SOLUTION: The composition includes (a1) tantalum alkoxide, (a2) a reaction product with at least one compound selected from amino alcohol, a compound having 2 hydroxide groups or more in its molecule (except amino alcohols), &beta;-diketone, &beta;-keto ester, &beta;-dicarboxylic acid ester, lactic acid, ethyl lactate and 1,5-cyclooctadiene and [B] orthocarboxylic acid ester. The tantalum oxide film is formed, by coating the composition on a substrate and treating it with heat or/and by light.  
 COPYRIGHT: (C)2003,JPO

=>